

Durham Research Online

Deposited in DRO:

19 February 2014

Version of attached file:

Accepted Version

Peer-review status of attached file:

Peer-reviewed

Citation for published item:

Scheuermann, T.S. and Tokar, D.M. and Hall, R. (2014) 'An investigation of African American women's prestige domain interests and choice goals using social cognitive career theory.', *Journal of vocational behavior*, 84 (3). pp. 273-282.

Further information on publisher's website:

<http://dx.doi.org/10.1016/j.jvb.2014.01.010>

Publisher's copyright statement:

NOTICE: this is the author's version of a work that was accepted for publication in *Journal of Vocational Behavior*. Changes resulting from the publishing process, such as peer review, editing, corrections, structural formatting, and other quality control mechanisms may not be reflected in this document. Changes may have been made to this work since it was submitted for publication. A definitive version was subsequently published in *Journal of Vocational Behavior*, 84, 3, 2014, 10.1016/j.jvb.2014.01.010.

Additional information:

Use policy

The full-text may be used and/or reproduced, and given to third parties in any format or medium, without prior permission or charge, for personal research or study, educational, or not-for-profit purposes provided that:

- a full bibliographic reference is made to the original source
- a [link](#) is made to the metadata record in DRO
- the full-text is not changed in any way

The full-text must not be sold in any format or medium without the formal permission of the copyright holders.

Please consult the [full DRO policy](#) for further details.

RUNNING HEAD: Prestige Interests and Choice Goals

An Investigation of African American Women's Prestige Domain Interests and Choice Goals
Using Social Cognitive Career Theory

Taneisha S. Scheuermann,^a David M. Tokar,^{b*} & Rosalie J. Hall^c

ACCEPTED FOR PUBLICATION 30 JANUARY 2014
JOURNAL OF VOCATIONAL BEHAVIOR

^a Department of Preventive Medicine and Public Health, University of Kansas School of Medicine, Kansas City, KS, 66160

^b Department of Psychology, University of Akron, Akron, OH 44325-4301

^c Durham University Business School, Mill Hill Lane, Durham, UK DH1 3LB,

*Corresponding author.

E-mail address: dmt5@uakron.edu

This article is based on the doctoral dissertation of Taneisha S. Scheuermann *nee* Buchanan, under the direction of David M. Tokar. We thank Sandy Perosa, Julia Phillips, John Queener, and Linda M. Subich for helpful feedback on that project. We also thank the women who participated and many others who assisted with the project.

ABSTRACT

Social Cognitive Career Theory (SCCT; Lent, Brown & Hackett, 1994) provides a framework for understanding career development, taking into account background and contextual variables using a social cognitive perspective. Given SCCT's focus on both personal and contextual factors, it has been widely applied to understanding the career development of ethnic minorities and women. This study extends the SCCT framework by testing the SCCT career choice model with variables defined along the prestige dimension, in a sample of 198 African American college women. Path analysis results supported SCCT propositions for the relations of prestige self-efficacy and prestige outcome expectations with prestige of vocational interests, and of prestige outcome expectations and prestige of vocational interests with prestige of choice goals. The relation of prestige self-efficacy to prestige choice goals was fully mediated by prestige of vocational interests; the relation between prestige outcome expectations and prestige of choice goals was partially mediated by prestige of vocational interests. Contrary to SCCT, the hypothesized relation of prestige self-efficacy to prestige outcome expectations was non-significant. Future research is needed to explore the impact of race, gender, and occupational domain on the relative influence of self-efficacy, outcome expectations, and interests on choice goals.

Keywords: Career development; Occupational prestige; African American women; Social Cognitive Career Theory; Vocational interests; Career choice goals

An Investigation of African American Women's Prestige Domain Interests and Choice Goals
Using Social Cognitive Career Theory

In 1940, approximately 70% of African American women were employed as farm laborers and servants; by 1980 that percentage had dropped to less than 8%, attributable to the Civil Rights Movement and decreasing educational and employment discrimination (U.S. Commission on Civil Rights, 1990). Although in the past four decades all women in the United States have continued to make strides towards improving their positions in the workforce, and the gender wage gap has decreased (US Bureau of Labor Statistics, 2013), these advances are not shared uniformly across racial/ethnic groups. African American women are still more likely to be employed in less prestigious, lower-status occupations, and specifically, less likely to be employed in managerial and professional occupations than non-Hispanic White women (US Bureau of Labor Statistics, 2013). African American women also comprise the highest percentage of US women living in poverty (25.9%; National Women's Law Center, 2012). There are also gendered wage disparities between African American women and men, with African American women earning, on average, 91% of African American men's wages (US Bureau of Labor Statistics, 2013). These statistics highlight the potential usefulness of investigating influences on the prestige of career choices made by African-American women, a goal pursued in the current study.

In general, the prestige of an occupation is a socially constructed, perceived construct, referring to the respect and high standing accorded to the occupation by members of a society, and encompassing a variety of attributes such as the perceived worth and power associated with the occupation (Rojewski, 2005). Occupational prestige may be conceptualized in various ways. For example, within the vocational psychology literature, occupational prestige has been

characterized in terms of: (a) status; (b) occupational level; (c) level of difficulty, responsibility, and training required; and (d) earning potential (Rojewski, 2005; Sodano & Tracey, 2008). The concept of prestige has figured prominently in major vocational theories, including Gottfredson's (1981) theory of circumscription and compromise of occupational aspirations, and Holland's (1997) theory of vocational personalities and work environments (i.e., his hypotheses regarding the level of work and level of training). However, these earlier theoretical propositions have received little empirical attention (Deng, Armstrong, & Rounds, 2007; Swanson & Gore, 2000).

More recent theoretical work by Tracey and Rounds (1996) considers prestige as an integral facet of vocational interests. Specifically, they proposed a three-dimensional spherical representation of Holland's (1959, 1997) RIASEC hexagon of vocational interests. Their interest sphere incorporates Prediger's (1982) two dimensions of People/Things and Data/Ideas, and uniquely contributes to our understanding of the structure of vocational interests by adding an orthogonal third dimension of prestige. This spherical structure of vocational interests has been supported in the empirical literature, and the three dimensions defining the sphere also have been found to replicate in measures of occupational self-efficacy (Deng et al., 2007; Tracey, 1997; 2002; Tracey & Rounds, 1996). An implication of the interest sphere is that when individuals are characterized in terms of their career interests, those interests may vary from one person to another not only in terms of preferences for working with people/things and data/ideas, but also in the level of occupational prestige which is desired. Such prestige preferences likely reflect one's own social aspirations, but also one's beliefs about the advantages or limits likely to be experienced due to personal capabilities and broader social factors such as money, access to education, mentors and developmental experiences, and discrimination.

The prestige component of vocational interests may be assessed both via ratings of preferences for occupational titles, and by collecting ratings of activity preferences (Tracey & Rounds, 1996). When assessed via activity preferences as done in the current study, the interest prestige scores appear to reflect the perceived effort and skill, as well as competition, associated with performing various types of vocational activities (Sodano & Tracey, 2008). Higher prestige is associated with activities requiring greater effort and skill, and with more competition.

Differences in perceptions of occupational prestige have been found between African American and White university students (Walker & Tracey, 2012). African Americans gave higher prestige ratings to Realistic, Social, Enterprising, and Conventional occupations than Whites, although both groups showed statistically significant, positive correlations in the .50's with a set of standard occupational prestige ratings (i.e., the Stevens & Hoisington [1987] occupational index). The magnitude of these differences was small and indicates minor differences in prestige perceptions associated with ethnicity. These small differences are unlikely to invalidate the use of prestige scores with African American populations, especially given previous work by Tracey (2002) showing measurement invariance across gender and ethnicity for the Personal Globe Inventory-based (PGI) measure of prestige used in the current study.

Social Cognitive Career Theory

The prestige-related component of occupational choice goals has not currently received a lot of study, and a comprehensive prestige model has not been previously proposed. Thus, in the current study we borrowed from more general Social Cognitive Career Theory (SCCT; Lent, Brown & Hackett, 1994) models of career interest development and career choice. This led us to propose that prestige-related interests and occupational choice goals among African American women can be predicted from their prestige self-efficacy and outcome expectations.

In its general form, SCCT provides a framework for understanding career development, taking into account background and contextual variables using a social cognitive perspective. Self-efficacy beliefs, outcome expectations, and interests all figure prominently in SCCT models. Briefly, SCCT posits that person inputs (e.g., personality) and background contextual factors (e.g., socioeconomic status) influence an individual's self-efficacy beliefs and outcome expectations (i.e., expectations of positive or negative consequences) through his or her career-relevant learning experiences. In turn, self-efficacy and outcome expectations influence the individual's vocational interests and other career outcomes such as career choice, both directly and through a sequential pathway.

Given SCCT's attention to contextual as well as internal person variables, this theory has been applied to ethnic minorities and women in both conceptual literature (e.g., Byars & Hackett, 1998) and empirical studies (e.g., Flores & O'Brien, 2002; Flores, Robitschek, Celebi, Andersen, & Hoang, 2010; Lent, Sheu, Gloster, & Wilkins, 2010; Nauta & Epperson, 2003; Navarro, Flores, & Worthington, 2007; Rivera, Chen, Flores, Blumberg, & Ponterotto, 2007). However, much of the traditional SCCT research focusing exclusively on African Americans has been conducted in math and science-related domains (Lent et al., 2005, 2010) because African Americans are underrepresented in STEM occupations (National Science Foundation, 2013).

Empirical studies do support using SCCT to explain STEM career development for an African American population. For example, results from a longitudinal study sampling primarily African American engineering students showed that their self-efficacy for completing an engineering degree predicted subsequent engineering interests and major choice goals, and that social supports encouraging the students to pursue their engineering major uniquely predicted subsequent goals to continue their studies (Lent et al., 2010). Similarly, Lent, Lopez, Sheu, and

Lopez (2011) found overall support for SCCT-based propositions with a large sample of mostly African- and European-American college students majoring in computer science-related disciplines, although expected associations of outcome expectations with interests and choice goals were non-significant. Lent et al. (2011) found the SCCT-based model was structurally invariant across race, but the magnitude of the relationship between self-efficacy and outcome expectations was higher for European American students than for African American students. Other SCCT studies sampling African Americans (e.g., Byars-Winston, 2006; Gainor & Lent, 1998; Lease, 2006; Quimby & Wolfson, 2007) also have generally supported SCCT hypotheses.

With respect to gender, vocational psychologists have argued that women's career development is qualitatively different than that of men (Betz & Hackett, 1981), although empirical tests of SCCT typically hold in mixed gender and female samples. However, few SCCT studies of any type have focused specifically on African American women. An exception is Dickinson (2008), which used Holland's (1997) RIASEC domains, and found the SCCT model to be invariant across gender for African Americans on five of the six interest themes, with differences on the Realistic theme. Briefly, SCCT has demonstrated its broad usefulness for explaining influences on occupational interests and choices as captured with traditional measures, in both African American and female samples. However, results from outside of the prestige dimension also suggest there may be some narrower but reliable domain-specific differences associated with race/ethnicity and gender. These suggest the importance of defining a specific target population for investigations of a prestige-related SCCT model in terms of gender and ethnicity.

In sum, the extant empirical literature demonstrates that SCCT constructs are predictive of African Americans' career-related interests and choice behaviors. Such studies of African

Americans have focused on Holland's (1997) RIASEC domains or more specific content domains such as math and science; however, no studies have specifically tested relationships among SCCT constructs along the prestige dimension. Thus, existing studies may not fully account for factors contributing to the level of responsibility, influence, and income associated with African Americans' career aspirations and choices. For example, we do not know whether the under-representation of African Americans in STEM occupations reflects less interest in the content of such careers (perhaps exacerbated by historically poorer backgrounds in math and science, as well as a shortage of same-race role models and mentors), or whether there are also aspirational barriers such as fears that higher status STEM careers will be reserved for majority members, or fears of rising "too high" and being ostracized by fellow minority group members, that might also affect efficacy and outcome expectations along the prestige dimension, and thus influence the prestige of African American occupational choices overall.

As previously described, African American women historically have been underrepresented in high-prestige occupations of all types, at least in part due to societal barriers for both women and African Americans. Thus they represent an ideal population in which to begin to investigate SCCT-based models of prestige-related occupational choice. The application of SCCT to the development of career-related interests and choice goals along the prestige dimension will assist vocational psychologists in understanding how internalized prestige self-efficacy and outcome expectations (as well as their precursors) contribute to African American women's consideration of high and low prestige careers.

Present Study

The current study extends research on SCCT for African American women by determining whether relationships implied by the SCCT career choice model (which includes

and extends the interest formation model; Lent et al., 1994) hold when the relevant constructs are defined in terms of the prestige dimension. That is, rather than examining interests and self-efficacy in terms of Holland's (1997) themes or specific occupational categories (e.g., math and science) as has been done in past studies, in the current study these constructs were assessed by quantifying the level of prestige attributed to specific occupations.

In this initial investigation of an SCCT-based prestige model, we chose to focus on the relationships of internal social cognitive variables (i.e., self-efficacy, outcome expectations, interests, and career choice goals), reasoning that support for a pattern of relationships among these key SCCT variables was necessary to demonstrate before proceeding to look for links between them and environmental contextual and experiential factors. As depicted in Figure 1, and consistent with SCCT career choice model propositions, we hypothesized (a) prestige self-efficacy relates positively and directly to prestige outcome expectations; (b) prestige self-efficacy and prestige outcome expectations relate positively and directly to prestige of vocational interests and prestige of career choice goals; and (c) prestige of vocational interests relates positively and directly to prestige of choice goals. Note that this model implies several hypothesized indirect (mediated) effects, namely, (d) indirect effects of prestige self-efficacy on prestige of vocational interests occur through prestige outcome expectations; and (e) indirect effects of prestige self-efficacy and prestige outcome expectations on choice goals occur through prestige of vocational interests (and, in the case of self-efficacy, through prestige outcome expectations). In sum, our proposed partial mediation model suggests African American women who hold higher self-efficacy and outcome expectations for higher prestige occupational activities will have increased likelihood of interests in high prestige occupational activities, and will set career goals for more prestigious occupations.

Thus, the current research makes two contributions. First, although there is some prior research of prestige variables (most notably by Tracey, Rounds, and colleagues), a full SCCT-based career choice model specified in prestige terms has not been previously studied. Second, African American women have been traditionally understudied. Our focus on African American women is consistent with Swanson and Gore's (2000) recommendation that researchers "move beyond studies of racial/ethnic differences in career choice to a fuller understanding of the academic and career experiences of racial/ethnic minorities" (p. 249) as well as Lindley's (2006) call for self-efficacy research focusing on the intersection of multiple identities.

Method

Participants and Procedure

Participants were African American/Black women from 19 higher education institutions who completed a survey administered online or in-person (there were no significant differences due to format, so the responses were combined into a single data set). Of 266 persons who started the online survey, 200 (75%) continued to the end, and 24 participants representing four colleges and universities completed the paper-and-pencil version of the survey. Participants who did not meet study criteria (e.g., were female) or had potentially problematic data (e.g., random responding, entire scales missing) were excluded from analysis, resulting in a final usable sample of 198.

Participants who reported their age ($n = 194$) ranged from 18 to 68 years ($M = 25.45$, $SD = 9.35$, $Mdn = 22$). All participants self-identified as African American or Black. Additional ethnic description was provided by some participants, namely, 29 (14.6%) indicated that they were bi/multiracial, 9 (4.5%) West Indian, 6 (3%) African, and/or 3 (1.5%) Latina. Self-reported grade point averages ranged from 2.0 to 4.0 ($Mdn = 3.0$). The majority of participants ($n = 170$,

85.9%) were undergraduates, 26 (13.1%) were graduate students, and 2 (1%) were post-baccalaureate students. Of 195 participants reporting personal/family annual income, 65% indicated an income of less than \$40,000. Regarding parental educational level, 87.2% reported that their mothers (or female guardians) had completed at least a high school education (3 participants did not report), and 77.7% reported that their fathers (or male guardians) had at least a high school education (15 participants did not report).

Participants were represented across 60 majors. The ACT Map of College Majors (ACT, 2010) was used to collapse participants' majors into the following 10 categories (with number of participants in parentheses): arts (8), business (23), communications (5), community services (30), computers and information (2), education (23), engineering and technology (2), medicine and allied health (39), science and math (10), and social sciences (49); 2 participants were undecided/undeclared and 5 did not report their majors.

Potential participants were invited to complete the survey using university mailing lists, flyers, e-mail invitations to student organizations, classes, and networks of individuals. Eighty participants received extra-credit for psychology classes for their participation, and eight \$25 gift cards were raffled as an additional incentive for online participation. Paper-and-pencil survey participants were given \$5 as a small incentive for their participation. For both the paper-and-pencil and web-based surveys, participants indicated their informed consent prior to receiving the survey questions. The survey included the measures described in the next section. Upon completion of the survey, all participants received written educational debriefing materials.

Instruments

Personal Globe Inventory. The Personal Globe Inventory (PGI; Tracey, 2002) was used to assess prestige-related interest and self-efficacy. Participants in the current study completed

the 113 occupational activity items. (Participants were not administered the occupational title items because the activity-based scales and the occupational title-based scales relate highly, and we wished both to reduce respondent burden [Tracey, 2002] and also to minimize method bias that might otherwise occur if we used occupational title-derived measures for both these scales and the outcome expectations and choice goals measures.) Each activity item (e.g., “help others,” “style hair,” “examine finances”) was rated twice, once using a *liking* response scale (1 = *strongly dislike*, 7 = *strongly like*) to indicate the participant’s preference for or level of interest in the activity, and once using a *perceived competence* response scale (1 = *unable to do*, 7 = *very competent*) to indicate the participant’s level of self-efficacy for the activity. The PGI is scored for 18 scales evenly spaced around a spherical representation (i.e., globe) of interests and self-efficacy. These spherical scales were then used to calculate Prestige dimensional scale scores, using Tracey’s (2002) formula.

The PGI has demonstrated excellent internal consistency reliability, and shows evidence of strong validity when assessed with other widely used measures of interests and self-efficacy. The PGI RIASEC activity interest scales and competence scales produced moderate to strong correlations with the corresponding Strong Interest Inventory II (SII-II; Harmon et al., 2004) General Occupational Themes and Skills Confidence Inventory (SCI; Betz, Borgen, & Harmon, 1996) scales, respectively. Additionally, the PGI structure appears to be invariant across gender, age, and racial group (Tracey, 2002). With regard to the prestige dimension, Tracey (2002) reported α ’s of .96 and .93 for the Prestige competence and interest scales in a sample of 1381 high school and college students.

Outcome Expectations scale. We modeled the current study’s Outcome Expectations (OE) scale on Gore and Leuwerke’s (2000) Occupational Outcome Expectations (OOE) scale.

The OOE measures outcome expectations for Holland's (1997) RIASEC themes using a list of occupational titles; in the current study we substituted the 108 occupational titles from the PGI. The OOE instructions ask participants to indicate the degree to which they would "get what they wanted" from each of 84 occupations using a 9-point Likert scale ranging from 1 (*not very much*) to 9 (*very much*). Instructions were kept the same for the current study's OE measure, except ratings were made using a 7-point Likert scale to maintain consistency with other study instruments. Scale anchors ranged from 1 (*not very much*) to 7 (*very much*). A prestige score for outcome expectations was calculated using scoring metrics from the PGI (Tracey, 2002). We utilized the OOE format because the original measure had good internal consistency reliabilities (ranging from .91 to .96) and had been shown to relate as expected with corresponding self-efficacy measures (Dickinson, 2008; Gore & Leuwerke, 2000).

Occupational Choice Goals scale. Career choice goals were assessed using the Occupational Choice Goals (OCG) scale, which was created for this study using the instructions from the Occupational Consideration scale (Lent, Brown, Nota, & Soresi, 2003) with the 108 occupational titles from the PGI. Instructions from the Occupational Consideration scale ask respondents to indicate "how seriously would you consider" each occupation as a possible career using a scale from 0 "*Not very seriously*" to 9 "*Very seriously*." For this study, consistent with the PGI rating scale, a 7-point Likert scale (1 = *Not very seriously*, 7 = *Very Seriously*) was used. A prestige score was calculated for prestige-related choice goals using Tracey's (2002) formula. This approach seemed reasonable given Lent et al.'s (2003) findings of good internal consistency reliabilities for the RIASEC Occupational Consideration scales (α s ranged from .85-.94) and confirmatory factor analysis results indicating that these scales measure a separate construct from other SCCT constructs (e.g., self-efficacy, outcome expectations, interests).

Demographic Questionnaire. Participants were also asked to provide background information about their age, gender, racial/ethnic background, overall GPA, current occupation, anticipated highest level of education, year in school, and major.

Results

Treatment of Missing Data and Preliminary Analyses

Although 132 of 198 (67%) participants were missing at least one data point, the total amount of missing data was minimal. All but 3% of participants were missing less than 10% of their item-level responses, with the average percentage of missing item-level responses at 1.4% per participant. No item was missing more than 4% of total participant responses. Missing data were handled through standard multiple imputation (MI) procedures, using Mplus Version 7 (Muthén & Muthén, 1998-2012) structural equation modeling software. This software was also used for all subsequent analyses.

MI approaches to the treatment of missing data involve the creation of multiple versions of the full data set (typically, 5 to 10 data sets are created), each with a slightly different set of imputed values for all missing responses. The imputed values are generated conditional on the known data, and a random component is added to each imputed value (this is necessary to recover unbiased estimates of standard errors). The focal data analyses are then repeated in each imputed data set, and the results from these analyses are cumulated in a manner similar to meta-analysis, in order to arrive at a final, single estimate of each model parameter and its associated standard error. This method of handling missing data has been shown to provide less biased estimates than techniques such as list-wise deletion of data and single imputation, and is rapidly becoming one of the preferred techniques for handling missing observations when data are believed to be “missing at random” (i.e., missingness may be explained by other covariates in the

model, but is not conditional upon the dependent variable). See Shafer (1997) for additional details.

In the current study, we generated 10 MI data sets. Subsequent hypothesis testing and exploratory analyses (including all of those reported in the Results section) were conducted on each of the 10 imputed data sets, and final parameter estimates were based on the cumulated estimates across the 10 sets of analyses. More specifically, we used path analysis to estimate the hypothesized relationships among variables (via path coefficients) and to test the overall fit of the data to our models. Path analysis is particularly appropriate for testing the fit of a set of manifest variables to a hypothesized model which includes directional relationships (Kline, 2005). The maximum number of free parameters estimated in any model was 10, easily meeting Kline's (2005) recommended minimum of 5-10 cases per estimated parameter. Model fit was evaluated using the χ^2 significance test, as well as the following alternative fit indices: comparative fit index (CFI), Tucker-Lewis fit index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). CFI and TLI values $\geq .95$ and RMSEA and SRMR values $\leq .08$ indicate good fit (Kline, 2005).

Study variables were screened for assumptions of normality and outliers in all 10 imputation data sets. All variables satisfied assumptions of univariate normality (i.e., absolute skew value of < 3 and absolute kurtosis value of < 10 ; Weston & Gore, 2006). To assess the multivariate skew and kurtosis for the four focal SCCT scales, Mardia's coefficients (Mardia, 1970) were calculated with the use of DeCarlo's (1997) SPSS macro. All of the data sets had statistically significant multivariate skew and kurtosis, although the values were low to moderate (MV skew: 2.826 to 2.909; MV kurtosis: 30.086 to 30.413). Mahalanobis values identified one individual who was an extreme multivariate outlier in 3 of the 10 imputation data sets, two other

individuals were extreme multivariate outliers in 1 of the 10 imputation data sets. These results indicate only moderate violation of the multivariate normality assumption required for maximum likelihood estimation of the path models. Thus, all path analyses were performed using a robust estimator (i.e., Mplus' MLR estimator) that adjusts the chi-square statistic and standard errors of parameter estimates for non-normality (see Finney & DiStefano, 2006).

Descriptive Statistics and Intercorrelations

Table 1 presents means, standard deviations, internal consistency reliabilities, and intercorrelations of the four focal study variables. Cronbach's alpha values for the composite prestige scores for each measure ranged from .89 to .93, suggesting excellent internal consistency reliability. Prestige of interests, outcome expectations, and choice goals were significantly and moderately positively intercorrelated, with values ranging from .43 to .65 ($p < .01$). Prestige self-efficacy correlated significantly and positively with prestige interests ($r = .39$, $p < .01$), but the correlation with prestige choice goals of $r = .12$ was not significant at $p < .05$.

Path Analyses

We first estimated the hypothesized partial mediation model (Model 1, shown in Figure 1), followed by a *post hoc* estimation which trimmed non-significant paths from the hypothesized model. The hypothesized model included paths representing the potential direct and indirect effects (through prestige of vocational interests) of prestige self-efficacy and prestige outcome expectations on prestige of choice goals. This model was saturated, so fit the data perfectly. Inspection of the parameter estimates and their statistical significance indicated that hypotheses involving the central SCCT constructs were mostly supported. Specifically, both prestige outcome expectations ($\beta = .42$, $p < .001$) and prestige self-efficacy ($\beta = .38$, $p < .001$) positively predicted prestige of vocational interests. Prestige outcome expectations ($\beta = .53$, $p <$

.001) and prestige of vocational interests ($\beta = .28, p < .001$) both had positive direct paths to prestige of choice goals. However, contrary to hypotheses, prestige self-efficacy did not directly predict prestige outcome expectations ($\beta = .02, p > .05$) or prestige of choice goals ($\beta = .00, p > .05$). The variables in the model explained 32% of the variance in prestige of vocational interests and 48% of the variance in prestige of choice goals.

Non-significant paths – that is, from prestige self-efficacy to prestige outcome expectations and to prestige of choice goals -- were trimmed from the hypothesized model by fixing their values to zero in order to create a more parsimonious *post-hoc* model (Model 2). Estimates from this model are shown in Figure 2. Model 2 had an excellent fit to the data, $\chi^2 (df = 2, N = 198) = 0.119, p = 0.94$, CFI = 1.00, TLI = 1.00, RMSEA < .001, and SRMR = .008. As can be seen in Figure 2, the values of the remaining non-zero path coefficients were essentially identical to those estimated in the hypothesized Model 1, and the proportion of variance explained in interests and choice goals also remained the same.

To determine whether mediation was present, the indirect (mediated) effects of prestige self-efficacy and prestige outcome expectations on prestige of choice goals through prestige of vocational interests were estimated in each of the 10 MI data sets, using the trimmed model. The statistical significance of the indirect effects was determined using bias-corrected, bootstrapped, 95% confidence intervals (CIs). Bootstrapping allows determining confidence intervals that do not rely on normal theory assumptions about the data, used here because the distribution of indirect effects is known to be in most cases non-normal (Preacher & Hayes, 2008). As hypothesized, the standardized indirect path from prestige self-efficacy to prestige of choice goals via prestige of vocational interests was significant, with an average β across the 10 MI data sets of .106; the 95% CI's for these estimates had an average lower limit of .040, and an average

upper limit of .173. The indirect path from prestige outcome expectations to prestige of choice goals via prestige of vocational interests was also statistically significant, with an average $\beta = .118$, 95% CI's had an average lower limit of .056, and an average upper limit of .180.

Collectively, results indicated that prestige self-efficacy had a significant and positive indirect effect through prestige of vocational interests on prestige of choice goals, whereas prestige outcome expectations had significant positive effects on prestige of choice goals through both indirect and direct paths.

Finally, because some of the participants were considerably older than traditional college age, the hypothesized and trimmed models were both re-estimated with that subset of the participants whose age was less than 30 years ($n = 155$), to eliminate the possibility that results were artifactually due to age variability in the sample. These re-estimations yielded results very similar to the full sample results.

Discussion

Our study investigated relationships among a set of occupational prestige variables with a sample of African American college women, contributing to the literature in a number of respects. First, existing SCCT literature on African Americans' career development has focused primarily on math and science occupations. Although STEM careers are important to investigate due to disparities in the racial/ethnic composition of workers in these fields (National Science Foundation, 2013), the result is few existing SCCT studies of African American samples across other career domains, a deficiency addressed by the current study.

Second, the prestige dimension of interests and goals had not been previously comprehensively studied within an SCCT framework. That is, although a few studies of SCCT have included occupational prestige (e.g., Flores & O'Brien, 2002; Tang, Fouad, & Smith,

1999), no prior studies have used prestige-specific measures of self-efficacy, outcome expectations, interests, and choice goals to assess SCCT-implied relationships among the set of prestige variables. Understanding African American women's career development along the prestige dimension may be particularly important due to trends of employment in lower-prestige occupations for this population. Developing an initial model of internal factors related to occupational prestige may be the first step to later studies elucidating the broader contextual influences and types of learning experiences that may influence the prestige of African American women's interests and goals.

The SCCT-based path models tested in this study (the hypothesized and trimmed models) supported four of the hypothesized relationships. Specifically, prestige self-efficacy and prestige outcome expectations both predicted prestige of vocational interests, and prestige outcome expectations and prestige of vocational interests both predicted prestige of choice goals. Furthermore, the significance tests of indirect (mediated) effects indicated that the relation between prestige self-efficacy and prestige of choice goals was fully mediated by prestige of vocational interests, and the relation between prestige outcome expectations and prestige of choice goals was partially mediated by prestige of interests.

Although statistically significant, the magnitude of the relation between prestige self-efficacy and prestige of interests ($\beta = .38$; $r = .39$) was weaker than Sodano and Tracey's (2008) previously reported $r = .59$ between prestige components based on PGI activity competence (i.e., self-efficacy) and activity preference (i.e., interest). Unfortunately, there is little existing prestige-related research on the other relationships in our model that can provide values against which to compare our results. We do note, however, that direct paths from prestige self-efficacy and outcome expectations to prestige of interests (β s = .38 and .42, respectively), and from

prestige of vocational interests to prestige of choice goals ($\beta = .28$), were within the ranges of those reported by Sheu, Lent, Brown, Miller, Hennessy, and Duffy (2010) based on a meta-analysis of 40 studies testing SCCT hypotheses across Holland's (1997) RIASEC themes, although these meta-analytic values were not based on the prestige dimension. Sheu et al. found meta-analytic path coefficients ranging from .19 to .44 for the path from self-efficacy to interests, from .25 to .63 for the path from outcome expectations to interests, and from .18 to .55 for the path from interests to choice goals. What is unclear, however, is the extent to which we should make direct comparisons of our results with non-prestige-based relationships, given that the meaning of the variables involved changes depending upon the dimension used to characterize them.

Interestingly, and consistently with other studies (see Sheu et al., 2010), including some of whose samples included African Americans (Dickinson, 2008; Fouad & Smith, 1996; Gainor & Lent, 1998), our results indicated prestige outcome expectations had a stronger direct relation to prestige choice goals ($\beta = .53$) than did prestige of vocational interests ($\beta = .28$). Indeed, in the current study, African American women's consideration of high and low prestige careers was more strongly associated with the anticipated outcomes from those careers than with either self-efficacy or interest related to the career. This finding is consistent with the idea that external context factors such as social norms, and barriers such as actual or anticipated discrimination, may play an important role in the prestige of occupational choices aspired to by African American women. Although preliminary and needing replication in future studies, these findings suggest it might be beneficial in career counseling interventions to enhance African American women's prestige outcome expectations.

The partial mediation of the effect of prestige outcome expectations on prestige of choice goals is posited by SCCT, and is consistent with previous research in other domains (e.g., Dickinson, 2008; Sheu et al., 2010). The first, stronger effect is direct, and the weaker, indirect effect is mediated through prestige of interests. Conversely, the fully mediated path from prestige self-efficacy to prestige of choice goals (via prestige of interests) is contrary to SCCT, which posits a partially mediated relation. It is, however, consistent with the findings of Sheu et al. (2010) and Dickinson (2008), who reported only modest (though, in some cases, statistically significant) direct effects of self-efficacy on choice goals.

More surprising, and interesting in its own right, was the non-significant path from prestige self-efficacy to prestige outcome expectations. Although not previously investigated using the prestige dimension, a non-zero, positive relationship is theoretically justified, and has been empirically supported in non-prestige domains with predominantly or exclusively African American samples (e.g., Dickinson, 2008; Gainor & Lent, 1998; Lent et al., 2005, 2010), as well as more generally (Sheu et al., 2010). Lent et al. (1994) reasoned that this relation would exist “since people presumably expect to receive desirable outcomes in activities in which they view themselves to be efficacious (Bandura, 1986)” (p. 89). We speculate that the low magnitude, non-significant result we found suggests our sample of African American women did not perceive a link between their capacity to perform high or low prestige activities and their outcome expectations. Instead, they may have perceived that successful outcomes in higher prestige careers depend upon contextual factors (e.g., racism; sexism; career networks, mentors, and other supports) that operate beyond their perceived competence to perform the corresponding requisite activities.

Limitations and Future Research Directions

Considered collectively, our results offer preliminary empirical support for the applicability of SCCT to the prestige dimension of occupations among African American women. However, there are some limits to interpretation. First, the study sample consisted of African American college and university women, most of whom attended colleges and universities in the Midwest. Therefore, these findings may not generalize to African American women from other regions or those who entered directly into the workforce without attending a 4-year college. Also, given that participants were college and university students, their career choice prestige may be higher than for women with a high school education or less, potentially limiting the variability in prestige level examined in this study. If so, reducing range restriction by including participants who were non-students might have resulted in stronger associations among the social cognitive variables.

A second limitation of this study is that it utilized newly developed measures of prestige outcome expectations and choice goals, as there were none previously available; further evidence is needed to establish their validity. However, we note that in our study, these measures had good internal consistency reliability, and the observed correlations were in the expected directions, thus providing initial support for their validity. Third, the research design of this study was cross-sectional, and although path analyses imply directional relationships, strong conclusions about causality cannot be made from the findings. Fourth, although a strength of the sample was its focus on African American women, a population for which the prestige model might be expected to be especially relevant, a drawback of such a targeted sample is that we do not know whether the full model operates similarly in other populations, a deficiency which could be addressed in future studies.

In addition, future researchers are encouraged to expand the model to include background and proximal contextual factors (e.g., perceptions of opportunity structure and discrimination), as well as learning experiences such as verbal persuasion and vicarious learning, relevant to the prestige dimension. And, it may be quite useful to determine the extent to which the prestige dimension of the constructs in our model adds to our understanding of career choices, over and above more standard measures of self-efficacy, outcome expectations, and vocational interests by considering models that include constructs operationalized along multiple dimensions. Finally, we note the potential for future intervention research with African American samples, similar to recent work focused on increasing participation in STEM occupations (Blustein et al., 2013; Cordero, Porter, Israel, & Brown, 2010).

Counseling Implications

Our findings suggest exploration of African American women's outcome expectations may be important in helping to understand the level of occupational prestige targeted in their career goals. As such, counselors should be prepared to discuss rewards and tradeoffs associated with the occupations under consideration. Bingham and Ward (2001) recommended that when working with African Americans, counselors include an assessment of cultural influences on the career issues, including issues related to gender, family, ethnic/racial group and the dominant culture. Furthermore, counselors may be well equipped to assist clients in determining options to overcome barriers and build supports.

In this article, we have noted the socioeconomic implications of prestige of career choice on African American women's career development. Implicit in this perspective is the supposition that higher prestige occupations will lead to desirable rewards and improved life circumstances. Liu and Ali (2005) challenged the classism associated with an emphasis on upward mobility in

vocational psychology. They suggested that by emphasizing attaining higher prestige occupations, vocational psychologists ignore the potential social and personal costs associated with striving for higher status occupations as well as the satisfaction that individuals may gain from pursuing lower prestige occupations. Counselors and researchers alike may benefit from recognizing their own personal values related to prestige and from seeking to explore clients' and research participants' world view rather than assuming that higher prestige occupations are inherently more desirable and will result in a better quality of life. Nonetheless, career choice prestige has a number of practical, real world implications and is worth exploring.

Conclusions

Our findings support examining prestige of vocational interests and choice goals in future SCCT research, providing a theory-based approach for studying occupational prestige that attends to contextual factors important in the vocational development process. Several SCCT propositions were supported with this sample of African American college and university women. The non-supportive results indicate the value of future research exploring whether race and gender or career domain impact the relative influence of self-efficacy, outcome expectations, and interests on choice goals.

References

- ACT. (2010). *Map of college majors*. Retrieved March 22, 2010 from <http://www.actstudent.org/majorsmap/plan.html>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Betz, N. E., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology*, 28, 399-410. doi:10.1037//0022-0167.28.5.399
- Betz, N. E., Borgen, F. H., & Harmon, L. W. (1996). *Skills confidence inventory: Applications and technical guide*. Consulting Psychologists Press.
- Bingham, R.P., & Ward, C.M. (2001). Career counseling with African American males and females. In W. B. Walsh, R.P. Bingham, M.T. Brown & C.M. Ward (Eds.), *Career Counseling for African Americans* (pp. 49-75). Mahwah, NJ: Lawrence Erlbaum Associates.
- Blustein, D. L., Barnett, M., Mark, S., Depot, M., Lovering, M., Lee, Y., ... & DeBay, D. (2013). Examining Urban Students' Constructions of a STEM/Career Development Intervention Over Time. *Journal of Career Development*, 40(1), 40-67. doi: 10.1177/0894845312441680
- Byars, A. M., & Hackett, G. (1998). Applications of social cognitive theory to the career development of women of color. *Applied & Preventive Psychology*, 7, 255-267. doi: 10.1016/S0962-1849(98)80029-2

- Byars-Winston, A. M. (2006). Racial ideology in predicting social cognitive career variables for Black undergraduates. *Journal of Vocational Behavior*, 69, 134-148. doi: 10.1016/j.jvb.2006.02.005
- Cordero, E. D., Porter, S. H., Israel, T., & Brown, M. T. (2010). Math and science pursuits: A self-efficacy intervention comparison study. *Journal of Career Assessment*, 18(4), 362-375., doi: 10.1177/1069072710374572
- DeCarlo, L. T. (1997). On the meaning and use of kurtosis. *Psychological Methods*, 3, 292-307. doi: 10.1037/1082-989X.2.3.292
- Deng, C.P., Armstrong, P. I., & Rounds, J. (2007). The fit of Holland's RIASEC model to US occupations. *Journal of Vocational Behavior*, 71, 1-22. doi: 10.1016/j.jvb.2007.04.002
- Dickinson, J. (2008). An examination of the applicability of Social Cognitive Career Theory for African American college students. *Dissertation Abstracts International Section B: The Sciences and Engineering*, 68(9-B), 6298. (UMI No. AAT 3280838)
- Finney, S. J., & DiStefano, C. (2006). Nonnormal and categorical data in structural equation modeling. In G. R. Hancock & R. O. Mueller (Eds.), *Structural equation modeling: A second course*. Greenwich, CT: Information Age Publishing. Pp. 269-314.
- Flores, L. Y., & O'Brien, K. M. (2002). The career development of Mexican American adolescent women: A test of social cognitive career theory. *Journal of Counseling Psychology*, 49, 14-27. doi:10.1037/0022-0167.49.1.14
- Flores, L. Y., Robitschek, C., Celebi, E., Andersen, C., & Hoang, U. (2010). Social cognitive influences on Mexican Americans' career choices across Holland's themes. *Journal of Vocational Behavior*, 76(2), 198-210. doi:10.1016/j.jvb.2009.11.002

- Fouad, N. A., & Smith, L. (1996). A test of a social cognitive model for middle school students: Math and science. *Journal of Counseling Psychology*, 43, 338-346. doi: 10.1037/0022-0167.43.3.338
- Gainor, K. A., & Lent, R. W. (1998). Social cognitive expectations and racial identity attitudes in predicting the math choice intentions of Black college students. *Journal of Counseling Psychology*, 45, 403-413. doi: 10.1037//0022-0167.45.4.403
- Gore, P. A., & Leuwerke, W. C. (2000). Predicting occupational considerations: A comparison of self-efficacy beliefs, outcome expectations, and person-environment congruence. *Journal of Career Assessment*, 8, 237-250. doi:10.1177/106907270000800303
- Gottfredson, L. S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology*, 28, 545-579.
- Harmon, L. W., Hansen, J. C., Borgen, F. H., & Hammer, A. L. (1994). *Strong Interest Inventory: Applications and technical guide*. Stanford, CA: Stanford University Press.
- Holland, J. L. (1959). A theory of vocational choice. *Journal of Counseling Psychology*, 6, 35-45.
- Holland, J. L. (1997). *Making vocational choices* (3rd ed.). Odessa, FL: Psychological Assessment Resources.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling*. (2nd ed). New York: Guilford.
- Lease, S. H. (2006). Factors predictive of the range of occupations considered by African American juniors and seniors in high school. *Journal of Career Development*, 32, 333-350. doi: 10.1177/0894845305283003

- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45, 79-122. doi: 10.1006/jvbe.1994.1027
- Lent, R. W., Brown, S. D., Nota, L., & Soresi, S. (2003). Testing social cognitive interest and choice hypotheses across Holland types in Italian high school students. *Journal of Vocational Behavior*, 62(1), 101-118. doi:10.1016/S0001-8791(02)00057-X
- Lent, R. W., Brown, S. D., Sheu, H. B., Schmidt, J., Brenner, B. R., & Gloster, C. S. (2005). Social cognitive predictors of academic interests and goals in engineering: Utility for women and students at historically Black universities. *Journal of Counseling Psychology*, 52, 84-92. doi: 10.1037/0022-0167.52.1.84
- Lent, R. W., Lopez, F. G., Sheu, H. B., & Lopez, A. M., Jr. (2011). Social cognitive predictors of the interests and choices of computing majors: Applicability to underrepresented students. *Journal of Vocational Behavior*, 78(2), 184-192. doi: 10.1016/j.jvb.2010.10.006
- Lent, R. W., Sheu, H. B., Gloster, C. S., & Wilkins, G. (2010). Longitudinal test of the social cognitive model of choice in engineering students at historically Black universities. *Journal of Vocational Behavior*, 76(3), 387-394. doi: 10.1016/j.jvb.2009.09.002
- Lindley, L. D. (2006). The paradox of self-efficacy: Research with diverse populations. *Journal of Career Assessment*, 14, 143-160. doi: 10.1177/1069072705281371
- Liu, W., & Ali, S. (2005). Addressing Social Class and Classism in Vocational Theory and Practice: Extending the Emancipatory Communitarian Approach: Comment. *The Counseling Psychologist*, 33(2), 189-196. doi:10.1177/0011000004272269

- Mardia, K. V. (1970). Measures of multivariate skewness and kurtosis with applications. *Biometrika*, 57, 519-530.
- Muthén, L.K. & Muthén, B.O. (1998-2012). *Mplus User's Guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.
- National Women's Law Center (2012, February) insecure and unequal: poverty among women and families 200-2011. http://www.nwlc.org/sites/default/files/pdfs/nwlc_2012_povertyreport.pdf
- National Science Foundation, National Center for Science and Engineering Statistics. 2013. Women, Minorities, and Persons with Disabilities in Science and Engineering: 2013. Special Report NSF 13-304. Arlington, VA. Available at <http://www.nsf.gov/statistics/wmpd/>.
- Nauta, M. M., & Epperson, L. (2003). A longitudinal examination of the social-cognitive model applied to high school girls' choices of nontraditional college majors and aspirations. *Journal of Counseling Psychology*, 50, 448-457. doi: 10.1037/0022-0167.50.4.448
- Navarro, R. L., Flores, L. Y., & Worthington, R. L. (2007). Mexican American middle school students' goal intentions in mathematics and science: A test of social cognitive career theory. *Journal of Counseling Psychology*, 54, 320-335. doi: 10.1037/0022-0167.54.3.320
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891. doi: 10.3758/BRM.40.3.879
- Prediger, D. J. (1982). Dimensions underlying Holland's hexagon: Missing link between interests and occupations? *Journal of Vocational Behavior*, 21, 259-287. doi: 10.1016/0001-

8791(82)90036-7

- Quimby, J. L., & Wolfson, J. L. (2007). Social cognitive predictors of African American adolescents' career interests. *Journal of Career Development*, 33, 376-394. doi: 10.1177/0894845307300414
- Rivera, L. M., Chen, E. C., Flores, L. Y., Blumberg, F., & Ponterotto, J. G. (2007). The effects of perceived barriers, role models, and acculturation on the career self-efficacy and career consideration of Hispanic women. *Career Development Quarterly*, 56, 47-61. doi: 10.1002/j.2161-0045.2007.tb00019.x
- Rojewski, J. W. (2005). Occupational aspirations: Constructs, meanings, and application. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 131–154). New York: Wiley.
- Schafer, J.L. (1997) *Analysis of Incomplete Multivariate Data*. Chapman & Hall, London.
- Sheu, H. B., Lent, R. W., Brown, S. D., Miller, M. J., Hennessy, K. D., & Duffy, R. (2010). Testing the choice model of social cognitive career theory across Holland themes: A meta-analytic path analysis. *Journal of Vocational Behavior*, 76, 252-264. doi: 10.1016/j.jvb.2009.10.015
- Sodano, S. M., & Tracey, G. (2008). Prestige in interest activity assessment. *Journal of Vocational Behavior*, 73, 310-317. doi: 10.1016/j.jvb.2008.07.002
- Stevens, G., & Hoisington, E. (1987). Occupational prestige and the 1980 US labor force. *Social Science Research*, 16(1), 74-105. doi: 10.1016/0049-089X(87)90019-6
- Swanson, J. L., & Gore, P. A. (2000). Advances in vocational psychology theory and research. In S. D. Brown & R. W. Lent (Eds.), *Handbook of counseling psychology* (3rd ed., pp. 233-269). New York: Wiley.

- Tang, M., Fouad, N. A., & Smith, P. L. (1999). Asian Americans' career choices: A path model to examine factors influencing their career choices. *Journal of Vocational Behavior*, 54, 142-157. doi: 10.1006/jvbe.1998.1651
- Tracey, T. J. G. (1997). The structure of interests and self-efficiency expectations: An expanded examination of the spherical model of interests. *Journal of Counseling Psychology*, 44, 32-43. doi: 10.1037//0022-0167.44.1.32
- Tracey, T. J. G. (2002). Personal Globe Inventory: Measurement of the spherical model of interests and competence beliefs. *Journal of Vocational Behavior*, 60, 113-172. doi: 10.1006/jvbe.2001.1817
- Tracey, T. J. G., & Rounds, J. (1996). The spherical representation of vocational interests. *Journal of Vocational Behavior*, 48, 3-41. doi: 10.1006/jvbe.1996.0002
- US Bureau of Labor Statistics (February, 2013). Women in the Labor Force: A Data Book. <http://www.bls.gov/cps/wlf-databook-2012.pdf>
- United States Commission on Civil Rights (1990, October). *The economic status of Black women: An exploratory investigation*. Retrieved March 11, 2009, from The University of Maryland School of Law, Thurgood Marshall Law Library Website: <http://www.law.umaryland.edu/marshall/usccr/documents/cr12b563z.pdf>
- Walker, T. L., & Tracey, T. L. G. (2012). Perceptions of occupational prestige: Differences between African American and White college students. *Journal of Vocational Behavior*, 80, 76-81. doi: 10.1016/j.jvb.2011.06.003
- Weston, R., & Gore, P. R. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist*, 34(5), 719-751. doi:10.1177/0011000006286345

Table 1

Descriptive Statistics, Internal Consistency Reliabilities, and Intercorrelations for Variables in Path Model

Variable	<i>M</i>	<i>SD</i>	α	1	2	3
1. Prestige self-efficacy	0.28	2.55	.93	-		
2. Prestige outcome expectations	2.41	2.80	.91	.02	-	
3. Prestige of vocational interests	3.45	2.50	.89	.39**	.43**	-
4. Prestige of choice goals	2.06	2.77	.93	.12	.65**	.51**

Note. $N = 198$. ** $p < .01$

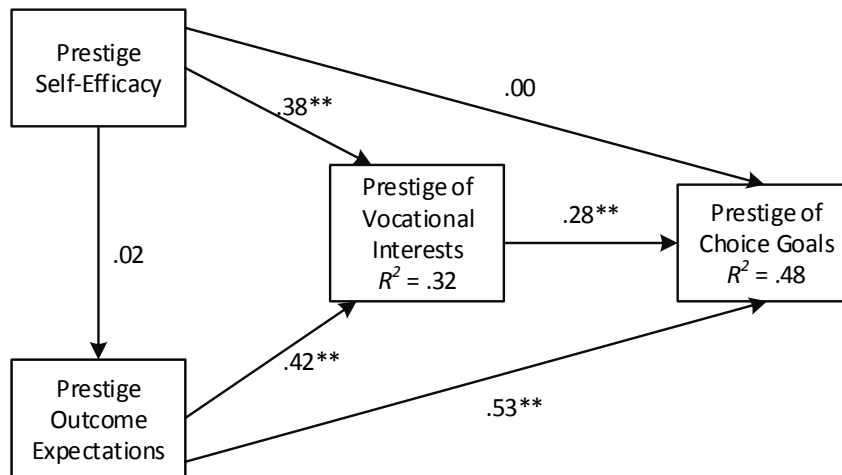


Figure 1. Hypothesized SCCT career choice model predicting African American women's prestige domain interests and choice goals. Path coefficients are standardized. * $p < .05$, ** $p < .01$

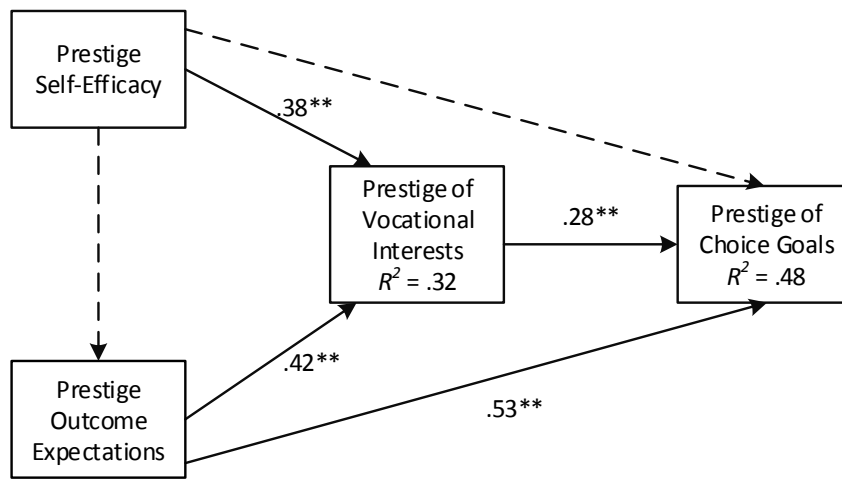


Figure 2. Standardized path coefficients for trimmed (post hoc) Model 2. Dashed paths were fixed to zero on the basis of non-significant coefficients in the previous (hypothesized) model.

* $p < .05$, ** $p < .01$.